



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,783	05/12/2006	Takashi Uchida	2006_0510A	3571
513 7590 09/02/2010 WENDEROTH, LIND & PONACK, L.L.P. 1030 15th Street, N.W., Suite 400 East Washington, DC 20005-1503				
EXAMINER				
LACLAIR, DARCY D				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
09/02/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ddalecki@wenderoth.com
coa@wenderoth.com

Office Action Summary

Application No.

10/575,783

Applicant(s)

UCHIDA ET AL.

Examiner

Darcy D. LaClair

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2010.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-23 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on **6/7/2010**.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The new grounds of rejection set forth below are necessitated by applicant's amendment filed on **6/7/2010**. In particular, **Claims 1 and 15** have been amended to recite the proportion of the total amount of components (B), (C), and (D) is 0.8 to 1.2 mol relative to 1 mol of (A), and the polyamine is added to a dispersion of the swelling inorganic layered compound, a dispersion containing the polyurethane resin, or a dispersion containing the aqueous polyurethane resin and the swelling inorganic layered compound. **New Claims 22 and 23** have been added reciting the polyamine is present in free form, and is interposed between layers of the inorganic layered compound. The amendment to Claims 1 and 15 is supported in Claims 3 and 17, at p. 19, paragraph [0048] of the specification, and page 25, paragraph [0062]) of the specification. New Claim 23 is supported at page 21, line 7-9 of the specification. These limitations or claims were not present in the claims at the time of the preceding Office Action. Thus, the following action is properly made **FINAL**.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claim 22** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, there is no support for the phrase "polyamine is present in the free form in the composition." The paragraphs [0052] – [0059] to which applicant refers for support describe the addition of a polyamine compound, but do not specify that it is in free form. There appears to be support for the concept of adding polyamine as a component to the dispersion, (see p. 25, line 10) which is already claimed in amended Claims 1 and 15.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 22** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, Claim 22 recites that the polyamine is present in free form in the composition. This is indefinite in that it is not clear what this refers to. Does this mean that the polyamine is not reacted with the other components? Does it mean that the polyamine does not interact with other components? The specification specifically indicates that the polyamine intercalates the inorganic layered compound, and thus it is

not free of the compound because it is in close physical proximity. Does it mean that the polyamine has a specific amine value making it non-reactive, or that it lacks some type of binding agent or capping agent associated therewith? This recitation is not clear and the specification provides no definition as to applicant's intended meaning by this claim. Furthermore, applicant has recited that the polyamine is a "free" polyamine and discusses in the remarks that the polyamine does not react with any isocyanate groups, but then follows with the argument that the acid group of the polyurethane resin and the basic group of the polyamine will be present in a ratio. An acid group and a basic group in solution will have a ionic attraction and therefore it is not clear that the polyamine would be free of this ionic attraction.

Double Patenting

Double Patenting. I

4. **Claims 1-23** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **Claims 1-11 of U.S. Patent No. 6,979,493** (earlier published as **US 2003/0207122**) in view of **Zilg et al. (WO 01/04193)**

The rejection is adequately set forth in **paragraphs 4 and 5** of the office action mailed **3/5/2010**, and is incorporated here by reference.

With regard to Claim 1, 6 and 15, the conflicting patent requires an aqueous polyurethane resin having urea groups and urethane groups, where the concentration of urea groups and urethane groups is 30 to 42.9% by weight based on the total weight of the resin, and also comprising a diisocyanate selected from the group consisting of

aromatic diisocyanate, alicyclic diisocyanate, and alicyclic diisocyanate, a C2-8 diol, and a diamine having 8 or fewer carbon atoms. (Claim 1) The specification defines the the portion of the diol and diamine components, which constitute applicant's (B), (C), and (D) components, as in the range 0.85 to 1.15 mol relative to one mol of the diisocyanate. (See col 5 line 29-37) The conflicting patent also requires the presence of 0.1 to 50 parts by weight of a layered inorganic compound (Claim 6,7) which is water swellable (Claim 8), and defines these compounds as smectite clays such as montmorillonite and swellable micas. (See col 9 line 56-col 10 line 9) The conflicting patent does not explicitly teach the use of a polyamine compound.

Zilg specifically teaches a filler mixture comprising a layered silicate such as montmorillonite (see p. 2 par 2) and a mineral filler for use with thermosetting resins (see abstract) such as polyurethanes. (See p. 6 par 3) The swellable clays are treated with swelling agents having an onium ion, including aromatic amines and **polyamines**. (See p. 2 par 4) This is consistent with adding the polyamine to a dispersion of the inorganic layered compound. As polyamines for use, Zelig teaches Jeffamine M, D, or T series. (See col 2 line 14) which are mono, di, and triamine compounds, such as Jeffamine D2000. (See col 8 line 40-60)

The swelling agent widens the interlayer spacing of the layered inorganic compound so that monomers can move into the interlayer space, and during subsequent polymerization, the mixture will form a nanocomposite. (See p. 4 par 2) The polyamines also play an important role in the preparation of polyurethanes, because they exhibit greater reactivity than comparable polyols. (See p. 12 par 3, 4)

Therefore it would be obvious to one of ordinary skill in the art to select a polyamine taught by Zilg for use as the swelling agent for the layered inorganic compound of the conflicting patent's polyurethane composition, as it effectively functions as a swelling agent and is will interact well with with the polyurethane components.

With regard to new Claims 22 and 23, Zelig teaches that the polyamine is added as a separate component to the laminar clay, which appears to be applicant's definition of a free polyamine. The swellable clays are treated with swelling agents including polyamines. (See p. 2 par 4) The swelling agent widens the interlayer spacing of the layered inorganic compound so that the polyamine intercalating agent can move into the interlayer space. (See p. 4 par 2)

Double Patenting, II

5. **Claims 1-23** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over **Claims 1-11 of U.S. Patent No. 6,569,533** in view of **Zilg et al. (WO 01/04193)**

The rejection is adequately set forth in **paragraph 6** of the office action mailed **3/5/2010**, and is incorporated here by reference.

With regard to Claim 1, 6 and 15, the conflicting patent requires an aqueous polyurethane resin having urea and urethane groups in a total concentration of 15% by weight or more (Claim 1), where the diisocyanate is selected from an aromatic or alicyclic diisocyanate and a C₂-C₈ alkylene glycol, (Claim 4) The claimed alkylene glycol, which is a diol compound, is used to introduce a hydrophilic compound, which is at least

a part of the diol or diamine component; as the hydrophilic compound, dihydroxycarboxylic acids, dihydroxy C4-C10 polycarboxylic acids, and dihydroxy aromatic carboxylic acids are be used. (col 5 line 60- col 6 line 2) These carboxylic acids are polyhydroxyalkanecarboxylic acids. The specification defines the the portion of the diol and diamine components, which constitute applicant's (B), (C), and (D) components, as in the range 0.85 to 1.15 mol relative to one mol of the diisocyanate. (See col 5 line 25-33) The conflicting patent also requires the presence of claims 0.1 to 50 parts by weight of a layered inorganic compound (Claim 6,7) which is water swellable (Claim 8), and defines these compounds as smectite clays such as montmorillonite and swellable micas, (See col 9 line 55-65) The conflicting patent does not explicitly teach the use of a polyamine compound.

Zilg specifically teaches a filler mixture comprising a layered silicate such as montmorillonite (see p. 2 par 2) and a mineral filler for use with thermosetting resins (see abstract) such as polyurethanes. (See p. 6 par 3) The swellable clays are treated with swelling agents having an onium ion, including aromatic amines and **polyamines**. (See p. 2 par 4) This is consistent with adding the polyamine to a dispersion of the inorganic layered compound. As polyamines for use, Zelig teaches Jeffamine M, D, or T series. (See col 2 line 14) which are mono, di, and triamine compounds, such as Jeffamine D2000. (See col 8 line 40-60)

The swelling agent widens the interlayer spacing of the layered inorganic compound so that monomers can move into the interlayer space, and during subsequent polymerization, the mixture will form a nanocomposite. (See p. 4 par 2)

The polyamines also play an important role in the preparation of polyurethanes, because they exhibit greater reactivity than comparable polyols. (See p. 12 par 3, 4) Therefore it would be obvious to one of ordinary skill in the art to select a polyamine taught by Zilg for use as the swelling agent for the layered inorganic compound of the conflicting patent's polyurethane composition, as it effectively functions as a swelling agent and is will interact well with with the polyurethane components.

With regard to new Claims 22 and 23, Zelig teaches that the polyamine is added as a separate component to the laminar clay, which appears to be applicant's definition of a free polyamine. The swellable clays are treated with swelling agents including polyamines. (See p. 2 par 4) The swelling agent widens the interlayer spacing of the layered inorganic compound so that the polyamine intercalating agent can move into the interlayer space. (See p. 4 par 2)

Claim Rejections - 35 USC § 103

6. **Claims 1-23** are rejected under 35 U.S.C. 103(a) as being obvious over **Uchida et al. (US 2003/0207122**, later published as **US 6,569,493**) in view of **Zilg et al. (WO 01/04193)**

The rejection is adequately set forth in **paragraph 9** of the office action mailed **3/5/2010**, and is incorporated here by reference.

With regard to Claim 1, 6 and 15, Uchida teaches that the portion of the diol and diamine components, which constitute applicant's (B), (C), and (D) components, as in the range 0.85 to 1.15 mol relative to one mol of the diisocyanate. (See col 5 line 29-

37) Uchida also teaches 0.1 to 50 parts by weight of a layered inorganic compound (Claim 6,7) which is water swellable (Claim 8), and defines these compounds as smectite clays such as montmorillonite and swellable micas. (See col 9 line 56-col 10 line 9) Uchida does not explicitly teach the use of a polyamine compound.

Zilg specifically teaches a filler mixture comprising a layered silicate such as montmorillonite (see p. 2 par 2) and a mineral filler for use with thermosetting resins (see abstract) such as polyurethanes. (See p. 6 par 3) The swellable clays are treated with swelling agents having an onium ion, including aromatic amines and **polyamines**. (See p. 2 par 4) This is consistent with adding the polyamine to a dispersion of the inorganic layered compound. As polyamines for use, Zelig teaches Jeffamine M, D, or T series. (See col 2 line 14) which are mono, di, and triamine compounds, such as Jeffamine D2000. (See col 8 line 40-60)

The swelling agent widens the interlayer spacing of the layered inorganic compound so that monomers can move into the interlayer space, and during subsequent polymerization, the mixture will form a nanocomposite. (See p. 4 par 2) The polyamines also play an important role in the preparation of polyurethanes, because they exhibit greater reactivity than comparable polyols. (See p. 12 par 3, 4) Therefore it would be obvious to one of ordinary skill in the art to select a polyamine taught by Zilg for use as the swelling agent for the layered inorganic compound of the Uchida's polyurethane composition, as it effectively functions as a swelling agent and is will interact well with the polyurethane components.

With regard to new Claims 22 and 23, Zelig teaches that the polyamine is added as a separate component to the laminar clay, which appears to be applicant's definition of a free polyamine. The swellable clays are treated with swelling agents including polyamines. (See p. 2 par 4) The swelling agent widens the interlayer spacing of the layered inorganic compound so that the polyamine intercalating agent can move into the interlayer space. (See p. 4 par 2)

7. **Claims 1-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Uchida et al. (US 6,569,533)** in view of **Zilg et al. (WO 01/04193)**

The rejection is adequately set forth in **paragraph 10** of the office action mailed **3/5/2010**, and is incorporated here by reference.

With regard to Claim 1, 6 and 15, Uchida teaches an aqueous polyurethane resin having urea and urethane groups in a total concentration of 15% by weight or more (Claim 1), where the diisocyanate is selected from an aromatic or alicyclic diisocyanate and a C₂-C₈ alkylene glycol, (Claim 4) The claimed alkylene glycol, which is a diol compound, is used to introduce a hydrophilic compound, which is at least a part of the diol or diamine component; as the hydrophilic compound, dihydroxycarboxylic acids, dihydroxy C₄-C₁₀ polycarboxylic acids, and dihydroxy aromatic carboxylic acids are be used. (col 5 line 60- col 6 line 2) These carboxylic acids are polyhydroxy alkanecarboxylic acids. Uchida teaches that the portion of the diol and diamine components, which constitute applicant's (B), (C), and (D) components, as in the range 0.85 to 1.15 mol relative to one mol of the diisocyanate. (See col 5 line 25-33) Uchida

also teaches the presence of claims 0.1 to 50 parts by weight of a layered inorganic compound (Claim 6,7) which is water swellable (Claim 8), and defines these compounds as smectite clays such as montmorillonite and swellable micas, (See col 9 line 55-65) Uchida does not explicitly teach the use of a polyamine compound.

Zilg specifically teaches a filler mixture comprising a layered silicate such as montmorillonite (see p. 2 par 2) and a mineral filler for use with thermosetting resins (see abstract) such as polyurethanes. (See p. 6 par 3) The swellable clays are treated with swelling agents having an onium ion, including aromatic amines and **polyamines**. (See p. 2 par 4) This is consistent with adding the polyamine to a dispersion of the inorganic layered compound. As polyamines for use, Zelig teaches Jeffamine M, D, or T series. (See col 2 line 14) which are mono, di, and triamine compounds, such as Jeffamine D2000. (See col 8 line 40-60)

The swelling agent widens the interlayer spacing of the layered inorganic compound so that monomers can move into the interlayer space, and during subsequent polymerization, the mixture will form a nanocomposite. (See p. 4 par 2) The polyamines also play an important role in the preparation of polyurethanes, because they exhibit greater reactivity than comparable polyols. (See p. 12 par 3, 4) Therefore it would be obvious to one of ordinary skill in the art to select a polyamine taught by Zilg for use as the swelling agent for the layered inorganic compound of Uchida's polyurethane composition, as it effectively functions as a swelling agent and is will interact well with the polyurethane components.

With regard to new Claims 22 and 23, Zelig teaches that the polyamine is added as a separate component to the laminar clay, which appears to be applicant's definition of a free polyamine. The swellable clays are treated with swelling agents including polyamines. (See p. 2 par 4) The swelling agent widens the interlayer spacing of the layered inorganic compound so that the polyamine intercalating agent can move into the interlayer space. (See p. 4 par 2)

Response to Arguments

8. Applicant's arguments filed **6/7/2010** have been fully considered. Specifically, applicant argues

(A) Independent Claims 1 and 15 have been amended to clarify that the urethane resin has substantially no reactive group with the polyamine, and to clarify that the polyamine is not a reactive component, but rather a non-reactive component with the urethane resin. The examiner's rejection is traversed on the grounds that the polyamine is present in free form in the aqueous resin composition. That is, from the molar ratio of the active hydrogen atoms of the components (B), (C), and (D) relative to the isocyanate group, the resultant polyurethane has substantially no reactive isocyanate. Furthermore, as isocyanate will react with water easily, any residual isocyanate group would be converted into a non-reactive linkage. Thus a reaction of the aqueous polyurethane with the polyamine would not be expected to occur. Furthermore, it is explicitly recited that the polyamine is added to the dispersion; this clarifies that the polyamine is a non-reactive component. Furthermore, the portion of the acid group of

"the polyurethane resin relative to the basic nitrogen atom of the polyamine is also not suggested by the cited references." The examiner alleges that Uchida teaches that the polyamine can be used together with the diamine chain extending compound in the preparation of the polyurethane and that the polyamine can also be used as a crosslinking agent. This is not logical and include technical inconsistencies. If Uchida uses the polyamine together with the diamine chain extending compound or the diamine crosslinking agent in the preparation, then the polyamines as well as the diamine should be incorporated into the backbone of the polyurethane since the amino group has the same reactivity with the isocyanate. Further the examiner has alleged that production example 10 uses polyamines and diamines in a mixture. However Example 10 is prepared from components (A), (B), (C), and (D) in production example 9, and does not use these components.

9. **With respect to argument (A)**, applicant's arguments have been considered. It is noted that applicant has focused exclusively on features of **US 6,979,492** and **US 6,569,552**, which is not a complete argument with respect to the rejections set forth, as these incorporate teachings from not only the primary references, but also the secondary references. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Nevertheless, with respect to the rejections, the following is set forth.

(A.1) The obviousness type double patenting rejections and 103(a) rejections over **US 6,979,492** and **US 2003/0207122** in view of **US 5,981,029** and over **US 6,569,552** in view of **US 5,981,029** have been withdrawn *in light of applicant's amendment* specifying that the polyamine is added either to the inorganic layered compound, or to a dispersion containing the polyurethane resin. This precludes adding the polyamine as a precursor to the polyurethane resin. Support for the amendment is acknowledged.

(A.2) With respect to the arguments over **US 6,979,492** and **US 2003/0207122** in view of **US 5,981,029** and **WO 01/04193** and over **US 6,569,552** in view of **US 5,981,029** and **WO 01/04193**, applicants arguments are *not persuasive*. First, attention is directed to the rejections set forth above, clarifying how the cited references read on applicant's new limitations. Further, it appears that applicant is attempting to both specify that the polyamine will not interact with the urethane and that it will. The reactive isocyanate group may not be available to react with the polyamine, based on the amendment reciting the content of (B), (C), and (D) to (A), however the independent claims specifically require that the basic nitrogen atom of the polyamine is present in a specific ratio to the acid group of the polyurethane. Therefore while the polyamine may not be reacting with the isocyanate, it does appear to be reacting with the polyurethane, at least by ionic attraction. Therefore applicant's arguments with regard to the free nature of the polyamine are not understood. Nevertheless, Zelig (WO 01/04193) teaches polyamine compounds used specifically for the purpose of intercalating swellable inorganic compounds. Thus applicant's arguments as to the function of the

polyamine chain extending agent and/or crosslinking agent are moot in view of Zelig's use of a polyamine compound added to the inorganic layered compound. Furthermore, it is noted that Zelig specifies Jeffamine M, D, or T series as suitable for intercalation, (see col 2 line 14), and later refers specifically to Jeffamine D2000, *inter alia*. (See col 8, line 45-60) This polyamine compound has an amine equivalent of 514. (See Burton, 2005, p. 4) It is noted that the Jeffamine is used to show a universal fact, namely the characteristics and properties of a material. See MPEP 2124. The properties of a material will not change, and thus the prior art meets the limitations of the claims.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Milton I. Cano/
Supervisory Patent Examiner, Art Unit 1796

Darcy D. LaClair
Examiner
Art Unit 1796

/DDL/